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RP-003-001531 Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

February - 2019

Biochemistry : Paper - 503

(Molecular biology and recombinant DNA technology)

Faculty Code : 003

Subject Code : 001531

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Answer briefly : **20**

(1) Maxam -Gilbert method is also known as _____.

(2) Write the reactions catalysed by reverse transcriptase.

(3) What are telomerases ?

(4) Give the two functions of SSB Proteins.

(5) What is Gene expression ?

(6) Define Consensus sequence & give its one example.

(7) What is Core enzyme of RNA polymerase ?

(8) Give the role of sigma 70 factor.

(9) Give the function of amino acyl tRNA synthetase.

(10) List any two inhibitors of translation.

(11) What is O-linked oligoschharide ?

(12) Define operon.

(13) Define : Mutation.

(14) What is nonsense mutation?

(15) Which mechanisms for thymine dimers repair lead to mutations?

(16) Frame shift mutation may occur as a result of _____

(17) Define : Episome.

(18) What is the use of selectable marker?

(19) What do you mean by electroporation?

(20) Write the three basic categories of transposons.

2 (A) Answer any **three** of the following questions : **2×3=6**

(1) Give the applications of sequencing.

(2) Why eukaryotic transcription is more complicated than prokaryotic transcription?

(3) What is Kozak sequence ?

(4) What do you understand by frameshift mutation.

(5) Give the generic structure of transposons.

(6) What do you understand by semi conservative model of replication ?

(B) Answer any **three** of the following questions : **3×3=9**

(1) Explain Sanger's method for DNA sequencing.

(2) What is poly (A) tail? Give its importance.

(3) Discuss briefly positive control of lac operon.

(4) Briefly explain SOS response.

(5) Explain steps involved in PCR.

(6) Illustrate intron removal in tRNA.

(C) Answer any **two** of the following questions : **5×2=10**

(1) Write in detail about the chemistry of DNA synthesis.

(2) State different stages of transcription and explain in detail about termination in E.coli.

(3) Describe attenuation control of trp operon.

(4) Discuss different types of mutagens.

(5) Write a note on applications of biotechnology in agriculture and environment.

3 (A) Answer any **three** of the following questions : **2×3=6**

(1) Why it is not favorable to have DNA replication from $3' \rightarrow 5'$ direction?

(2) What do you understand by snRNPs ?

(3) Write a note on Wobble hypothesis.

(4) What is wobble hypothesis?

(5) What do you understand as forward and reverse primer?

(6) With one example explain about operon.

(B) Answer any **three** of the following questions : **3×3=9**

(1) Explain automated DNA sequencing method.

(2) Distinguish eukaryotic RNA polymerases and list their products

(3) Write a comparative account on translation in prokaryotes & eukaryotes.

(4) Only give the diagrammatic explanation of Ames test.

(5) Define plasmid and give important characteristics of it.

(6) Write a short note on conjugationin bacteria.

(C) Answer any **two** of the following questions : **5×2=10**

(1) Explain Maxam-Gilbert method of sequencing.

(2) Discuss in detail about formation of ribosome in eukaryotic cell.

(3) With diagram, explain initiation phase in prokaryotic translation.

(4) What is mutation? Give short note on different types of gene mutation.

(5) Write a short note on Gene cloning.